

# AFFIDAVIT OF ALUN J. FRYER Relating to United States Patent Application Serial No. 10/648,266, Filed August 27, 2003

I, ALUN J. FRYER, of the City of Nepean, of the Province of Ontario, in the country of Canada, MAKE OATH AND SAY AS FOLLOWS:

- 1. I am a named inventor for United States Patent Application Serial No. 10/648,266, filed on August 27, 2003, entitled "VIDEO PRODUCTION SWITCHER WITH INTEGRATED DIGITAL VIDEO PROCESSING UNIT" (hereinafter "The Application"), which is a continuation of United States Patent Application Serial No. 09/493,182, filed January 28, 2000, which in turn claims the benefit of United States Provisional Patent Application Serial No. 60/117,676, filed January 28, 1999, and as such have knowledge of the facts contained herein.
- 2. THE invention disclosed and claimed in The Application was conceived and completed in Canada, as part of my duties for my employer.
- THE invention disclosed and claimed in The Application was implemented in the "Synergy Series Digital Production Switchers" product line of Ross Video Limited.
- 4. THE "Synergy Series Digital Production Switchers" product line implementing the invention disclosed and claimed in The Application was advertised in a 1998 Product Catalog of Ross Video Limited, printed in March 1998. Attached as Exhibit "A" are copies of the cover and pages 1 to 13 of the Product Catalog.

- 5. THE dedicated connections claimed in The Application enable a Digital Video Effects (DVE) module to be built into every keyer. This feature is specifically noted on page 11 of the 1998 Product Catalog of Exhibit "A" in the paragraph entitled "Squeeze & Tease".
- 6. AN operational Synergy Series Digital Production Switcher was exhibited and demonstrated at a National Association of Broadcasters (NAB) show, which ran from April 6 to 10, 1998, in Las Vegas, Nevada (NAB '98). Attached as Exhibit "B" are copies of photographs dated April 8, 1998, showing the Synergy Series Digital Production Switcher as exhibited and demonstrated at NAB '98.
- 7. DURING NAB '98, I attended operational demonstrations of the Synergy Series Digital Production Switcher by David Ross.
- 8. THE Synergy Series Digital Production Switchers received an award at NAB '98. Attached as Exhibit "C" is a copy of a print ad acknowledging an "Editor's Pick of the Show" Award to Ross Synergy Series Digital Production Switchers for its "extensive future package which includes "Squeeze & Tease" DVE effects in every keyer."
- 9. DEVELOPMENT of the Synergy Series Digital Production Switchers product line continued after NAB '98, and a revised design also incorporating the invention disclosed and claimed in The Application was subsequently completed. Attached as Exhibit "D" are clearer copies of the original dated drawings filed as Figures 3 to 34 of The Application. With the exception of Figure 27, which is

not material to the claimed invention, all of the drawings are dated on or before December 17, 1998.

SWORN BEFORE ME at the City of

Ottawa, in the Province of Ontario,

Canada, this 26 day of June,

2007.

Alun J. Fryer

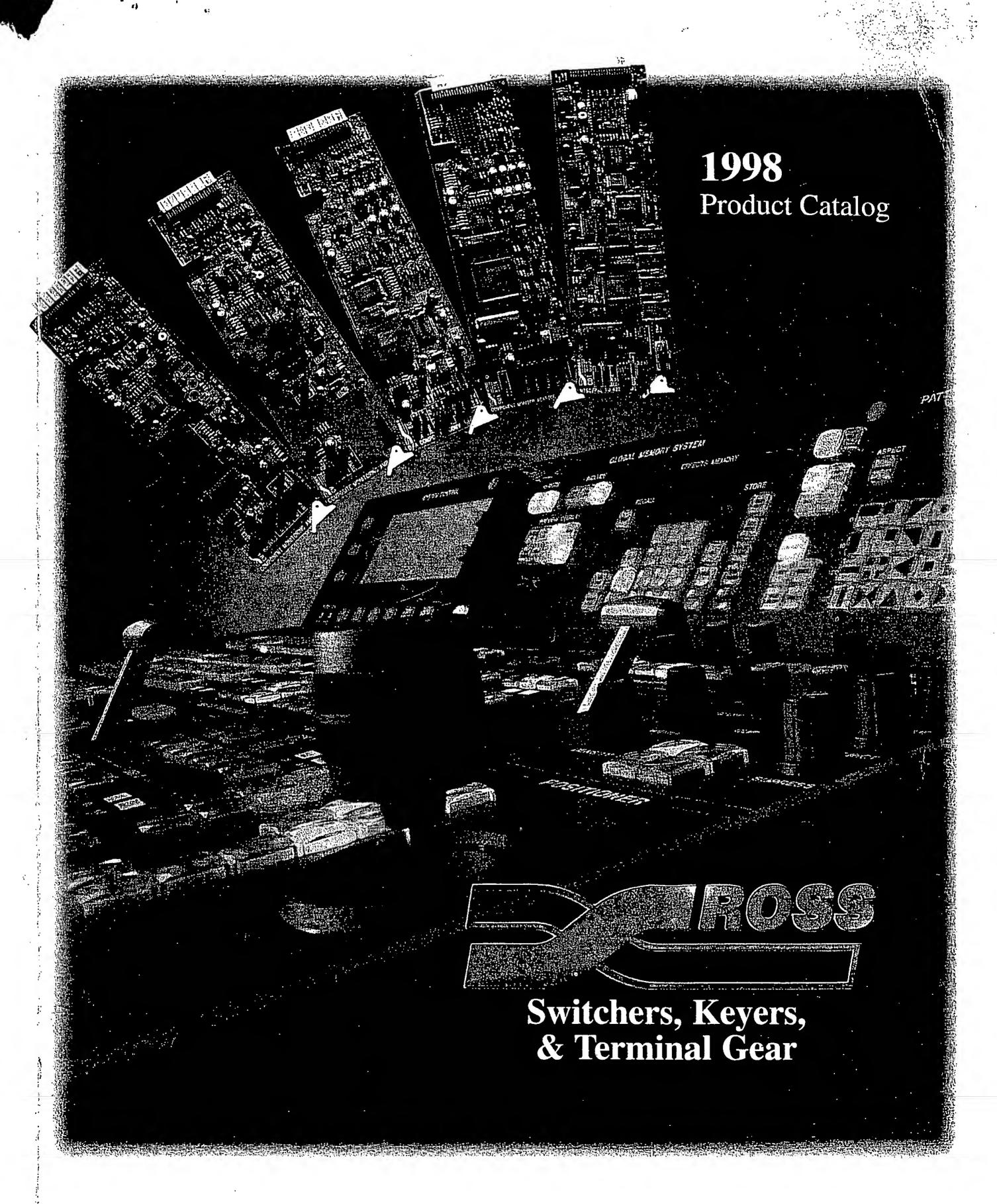
BRADLEY M. WINCOTT, BA. LA. Barrister, Solicitor & Many 2nd Floor, 800 Grand Floor, 800 Gra

1.

BRADLEY H. WRIGHT, B.A., LLB. Barrister, Solicitor & Notary 2nd Floor, 900 Greenbank Road Ottawa, Ontario, Canada K2J 1S8

# EXHIBIT A

This is Exhibit		referred	o in me
affidavit of .	cus 8	FRYER	
anidavit of		26	
sworn before n	ne, this		•••••••••••••••••••••••••••••••••••••
day of	Iuni		.19
Y		VER POR TAKING	
90.	COMMISSIO	WER FOR TAKING	AFFIDATIN



© 1998 Ross Video Limited

Printed in Canada

All Rights Reserved.

No part of this catalog may be reproduced in any form without prior written permission from Ross Video Limited.

This catalog is furnished for informational use only. It is subject to change without notice and should not be construed as commitment by Ross Video Limited. Ross Video Limited assumes no responsibility or liability for errors or inaccuracies that may appear in this catalog.

Printed: March 1998

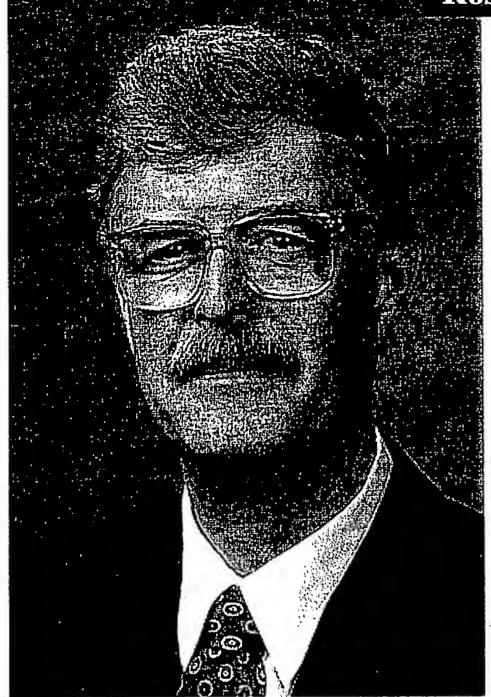
Ross Video Limited

P.O. Box 220, 8 John St., Iroquois, ON., Canada K0E 1K0

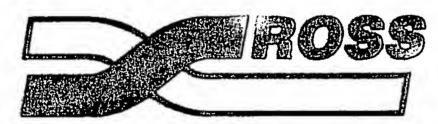
Ross Video Incorporated

P.O. Box 880, Ogdensburg, New York, USA 13669 0880

#### Ross Video



John Ross President



Switchers, Keyers, & Terminal Gear

# Welcome

Thank you for your interest in Ross Video products. This is the 2nd Edition of our catalog and there are many new products since last years' issue. I'm pleased to say that Ross Video is very much a thriving company. Our sales last year have vastly exceeded anything in our history. This sales success has allowed us to almost double our sales and marketing staff. To keep pace, manufacturing has expanded and enhanced our in-house surface mount capabilities. Of course, much of this activity has followed the very successful introduction of major new products from our expanded development groups which continue to create innovative products combining excellent performance with great value.

In spite of our rapid growth, we at Ross have not forgotten our roots and guiding principles. I can assure you, when you use this catalog, you can select Ross products with absolute confidence. Simply stated, Ross products do exactly what they are intended to do. You can rely on this. Need proof? -just ask any Ross customer.

As a special treat, I'm sure that you'll find the candid product development stories from David Ross (see page 3) to be interesting and provide an unusually fresh behind-the-scenes peek into the development activities at Ross.

Our engineers continue to turn out new products every few weeks. Many of our most popular products were developed at the request of our customers, if you have a special requirement, please let us know. We hope you enjoy our catalog.

#### **New Products PAGE** 8 - 13**Synergy Series Production Switchers** Synergy 4 - 4 MLE Synergy 3 - 3 MLE Synergy 2 - 2 MLE Digital Video Buffer Family **DVB-8020** Image Capture Buffer 64, 65 DVB-8020/C Frame Store Buffer 66, 67 DVB-8020/F Image Store Buffer 68, 69 DVB-8020/I 70, 71 Video Delay DVB-8020/D 72, 73 Frame Synchronizer DVB-8020/S 74, 75 Digital Video Buffer (total capability version) DVB-8020 140, 141 AVFR-7564-DC Audio Video Tray - DC Version Telcom Frame AVFR-7565-DC Audio Video Tray - DC Version Telcom Frame 140, 141 DC Power Supply - DC Power Supply 140, 141 PS-7103-DC 53 RGB/YUV to 4:2:2 Serial Converter **ADC-8033** 61 **DAC-8015B** 4:2:2 to NTSC/PAL Encoder 76 **DDC-8021** Serial 4FSC NTSC to 4:2:2 Converter 77 **DSS-8022** Dual Serial 2x1 Switch 40, 41 4 Input Audio Video Mixer **AVM-7900** 32, 33 Component Digital Multi-Keyer **CDK-101M** 137 Setup Adding Amplifier **SAA-7533**

#### Growth

Last year marked another great year of sales growth. Our line of terminal equipment products really took off and our line of analog production switchers continued to sell very well.

#### **New Products**

We have continued to invest heavily in Research & Development. Ross engineers continued to develop and introduce many new products throughout the year. There were several new additions to our Digital terminal equipment line including the DVB-8020 Digital Video Buffer, ADC-8033 RGB/YUV to 4:2:2 Serial Converter, DSS-8022 Dual Serial 2x1 Switch and CDK-101M Component Digital MultiKeyer. Analog products included the AVM-7900 Mini Master Control Switcher and SAA-7533 Set Up Adding Amplifier. Our terminal equipment products were adapted to the telecom market with the addition of a 48 Volt DC power supply to the product line.



At Ross, we are excited about the introduction of our new Synergy Series Digital Production Switchers. We believe that the timing of this product line could not be better with the vast majority of the broadcast market ready to move to digital. The Synergy Series utilizes the latest digital technology with operational features based on 24 years of experience building production switchers and a deep understanding of production requirements. There are some very powerful features in this new product line that you won't see anywhere else.



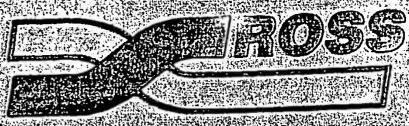
We have introduced the RossGear name to brand our terminal equipment products. Ross now has a comprehensive array of high quality distribution and conversion products to fit most applications. This product line will continue to grow, with many exciting introductions planned throughout the year.

# **Analog Commitment**

Ross will continue to manufacture analog production switchers and terminal equipment. This continues to be a good market for us and our sales have been solid. There are many customers for whom it makes sense to keep their facilities analog rather than go digital. Ross will support these customers.

#### **HDTV**

Ross is actively involved in HDTV and will have products for this market at an appropriate time. Stay tuned.



## Switchers, Keyers, & Terminal Gear

Founded in 1974 by John Ross, Ross Wideo is a company dedicated to designing and manufacturing the best in Switchers, Keyers and Terminal Gear Ross Video focussed exclusively on analog production switchers until a decision was made 5 years ago to expand our focus and apply our engineering expertise to Terminal Gear and Keyers The Ross product line has grown rapidly since then and sales results have been dramatic with an average growth of over 30% per year since fiscal 92/93

Ross has extensive expertise in both Digital and Analog circuit design. The rapid growth of our product lines has been greatly assisted by having two focussed and efficien development groups, one in Ottawa for production switchers and another in Iroquois for distribution product The excellence of Ross engineering has led to the design of products for Lockheed Martin that will be used on the International Space Station.

Ross has two manufacturing facilities in Iroquois in which our products are built and tested. The Ottawa and Montreal international airports are nearby, making worldwide shipments efficient and reliable. We are locat less than a mile from the United States and have a depot just minutes away in New York state. In most cases good can be shipped anywhere in North America by next day.

Ross is a privately held company and all growth has been internally financed. This provides Ross with total contro over its own destiny. Our expansion has been carefully, managed with our production facility maintaining string controls on quality. We have consistently met very tight delivery deadlines for both our domestic and internation customers

Ross Video has satisfied customers throughout the world (and soon in outer space). Our broadcast customer reference list includes NBC, ABC, CBS, Fox & HBO in the US; CBC, CTV and Global in Canada, TVE in Spair KBS in Korea, SABC in South Africa, Televisa in Mexic and ABC in Australia. We are providing broadcast solutions to many cable companies such as Time Warner TCI, and Continental Cable as well as Direct to Home broadcasters such as SKY-TV We have dozens of educational users, ranging all the way from the Universi of Alaska down to the University of Florida. We have a enjoyed tremendous success with sports stadiums such Camden Yards, Madison Square Gardens, Airowhead Po SkyDome, and Hollywood Park Race Track. Our corpor clientele includes well known organizations like Ford, I and Macy s

There's nothing like developing products for the television industry.
You lead the way with cutting edge technology, you get to work with video, you rub shoulders with the entertainment industry, and somehow, you feel like you're on the inside of some special club.



Ross Video had the best year in it's history last year. I believe it was due to the close relations we have with our customers and the superb technical expertise our people have to offer. I expect that we'll be able to do even more for the television industry this year with the release of many major new products.

We thought you might be interested in the stories behind some of the new products introduced by my team and how our customer's ideas, your ideas, find their way in to our standard products.

The Telecine Switcher Story

KEST KOOL

可可谓可。 回答:

A customer called us up and wanted to use our CDK 104 digital keyer in his telecine suite. Apparently someone had said it would be good for this on the Telecine Internet Group.

The more the customer told us about his "switcher" needs, the more it became apparent that he didn't want a switcher at all. He wanted much of a switcher's hardware but a very different user interface.

He wanted a simple user interface that matched his colorist's basic needs - letter boxing, side by side comparisons, keying, and the occasional test chroma key. The rest of the switcher was overkill for the application.

He also had special needs that weren't addressed by switchers, like letter boxing with positioning accurate and repeatable to the pixel. He wanted a built in proc-amp to remove the color correction that his color corrector did to his vertical interval too!

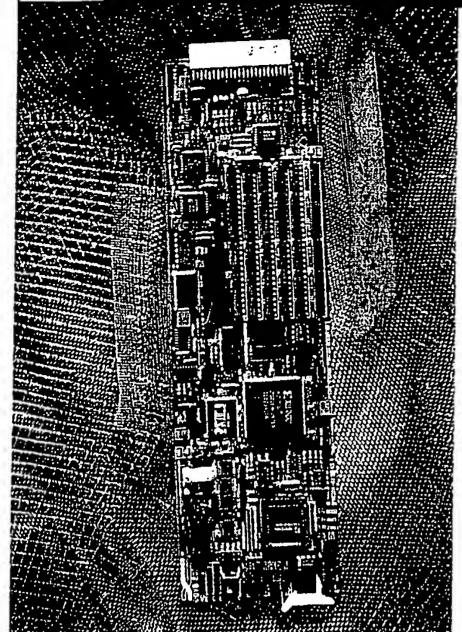
It became apparent, as we listened, that we had the opportunity to do something unique. We ended up with a new type of product, the CDK 104 Telecine Switcher.

We've since shipped lots of them. Ross also received the Television Broadcast NAB 97 Editor's Pick of Show Award "For the Advancement in the Art and Science of Television Broadcast". It hangs at the entrance to our lab.





### 4 David Ross - Executive Vice President Ross Video



# The DVB 8020 Story

We were working on a very large order for a pay-per-view satellite system. They were using our keyers and our DAs but had a problem where they needed to put different text on over 50 channels. The lowest cost solution involved capturing the output of their graphics system. A single card based frame store seemed best and I assumed that someone must sell such a thing.

I called most of our competitors, described what we needed, and even explained that large quantities would be involved. No one had anything to offer. Finally one competitor said, "This must really bug you guys - Ross could design that in a week!". I put down the phone and decided that he was right.

Two weeks later we had the designs for a new family of products: a frame store, a frame synchronizer, a full frame digital delay, an image store, and my personal favorite - a capture card that holds an image even after the power fails. We also have a unique card that does all of the above! Three months later we shipped sixty-five units.

# The Synergy Story

Synergy is a series of digital switchers that we've all been looking forward to. This product uses the absolute latest technology and wouldn't have been possible even a year ago.

Our engineers have managed to put a 64 input, 28 output, 4 MLE digital switcher with redundant power into an 11RU frame that consumes less that 600 watts of power fully loaded and

DIGITALSPRODUCTIONS WITCHERS

DIGITA

adds less than one-quarter line of processing delay.

In fact, only two of the 11 slots in the system handle video processing - the rest are just for inputs!

The system has a highly modular design. It's possible to buy a 2 MLE switcher today and upgrade to a 4 MLE switcher in the future simply by adding a new panel and some circuit boards to your existing frame. That's because the entire series uses the very same rack frame. It also means that the smallest switcher in the family, the Synergy 2, has the very same powerful features as the largest, the Synergy 4.

Over the years many people have said that when we come out with our new digital switcher that we should build a DVE into it. Originally, I didn't want to do this because switchers are long-lived layering devices while DVEs are flashy effects devices that have to be updated relatively frequently to improve the look of a show. I felt that these

were best left external to free the customer to get the best on the market.

Over time I realized that there were two main uses for a DVE - one was for the flashy effects but the other was over-the-shoulder boxes. Everywhere I went, people were showing me tremendously expensive two and four channel high end DVEs that were being used just for multiple squeezebacks! It seemed like a terrible waste of money for most customers. This led us to the concept of a "Squeeze & Tease" in every keyer.

The Squeeze & Tease option is priced at a fraction of the cost of an external DVE. It's tightly coupled with

the keyer so it doesn't require any aux busses - it uses the key bus instead. It comes with it's own over-the-shoulder border area that complements the keyer's other shadow generator. It's also completely integrated into the switcher so that even if you are using eight of them (as with the Synergy 4) the joystick and controls automatically go to the one you need.

We put the Squeeze & Tease into the keyer in such a way that we could squeeze more than just over-the-shoulders. We made it possible to

squeeze any key type. This is where things get really exciting. We added a new button to each keyer called "FLY KEY". Press FLY KEY and then grab the switcher joystick to do a reposition, squeeze, zoom, mirror, and more... to say, a chroma key! Linear key with key channel? No problem.

Here's a good one: put a soft-edged preset pattern in the corner, take a shot of a person's face that's full screen, squeeze it down, move it into the preset pattern, and then put a soft transparent drop shadow under the preset pattern. Take the whole effect and push it off screen using the switcher's effects dissolve capability. All in one keyer. Repeat with other keyers if desired.

We didn't forget about the need for flashy transition effects either. External DVEs can still be controlled as you are used to and we've made even more possible with our "DVE SEND" system. This allows you to use external DVE transitions in exactly the same way that you use wipes on the switcher. You can "peel off" any combination of backgrounds.

Another thing we did was to add something called "Preview Overlay". We found that many operators run switchers like other people type - they look at the monitor, not their fingers. This makes sense because in live situations you need to follow the action. To help out, our color-coded Preview Overlay puts the name of the current background source right onto the preview monitor. It also lets you know what the next transition type is: wipe, dissolve, or external DVE. It can all be added or removed from the monitor at the touch of a button.

Many newsrooms I've visited have a beat-up count up/down timeclock for judging when to come out of commercial. The problem is, people forget to

start it when they're going into commercial. We built a timeclock into the switcher and put it up onto the Preview Overlay and then linked it to restart after transitions in the program/preset area. Problem solved.

Another problem in newsrooms is machine control. The VTR operator is usually in a different room from the switcher operator and tapes don't always get rolled when they should. You end up either with uncomfortable pauses on air or clips cut off at the start. We added a "ROLL VTR" button to the transition area of every MLE. Just select your VTR

on the Preset Bus, press ROLL VTR, and take it to air. Simple. Even better, we can show the VTR's current timecode on the Preview Overlay. The switcher operator can then grab that timecode, store it in a memory, and then recue to that timecode later in the program or in a following show. Fast Forward, Rewind, Stop, Play, ... it's all there at the touch of a button. And not a menu softbutton, a "Custom Control" button right on the panel.

Custom Control refers to 32 programmable buttons just above the Program/Preset bus that are used to recall any combination of switcher memories, button pushes, and external device control. (There's 24 on the Synergy 2). Call these buttons your "imagination buttons" if you want because they'll do just about anything.

Our engineers have managed to put a 64 input, 28 output, 4 MLE digital switcher with redundant power into an 11RU frame that consumes less than 600 watts of power fully loaded and adds less than one-quarter line of processing delay. In fact, only two of the 11 slots in the system handle video processing - the rest are just for inputs!



Want a button dedicated to rolling VTR GREEN? Okay. How about getting the next page of your still store up? Fine. Suppose you had a complex intro to a show that rolled some machines, initiated some DVE moves, recalled MLEs, took keys on and off air, and used some sources that weren't known until air time, all to complex timing? No problem, and rocket science sequence programming isn't required. Just hold down a Custom Control button and it will record your steps as you do them on the control panel. Then go back and insert pauses and external device control into the event list generated. Simple, yet powerful. You could even put the major moves in a newscast into several Custom Control buttons and do the show by the numbers. As easy as 1, 2, 3. When we showed the idea to customers in focus groups they got excited and told us to double the number of buttons. We did.

Chroma keying can also be a challenge on air. The talent usually walks on about one minute before a busy switcher operator has to go to weather. For tight situations like this we have a "simple" chroma keying mode that clears the controls that take time to set up and leaves the operator with clip, gain, and hue. Simulated soft edged shadows can then be added quickly with the border generator. If you have more time to do your setup and lighting you can bring the full force of the chroma keyer into play with controls like: chroma suppression, hue rejection, natural shadows, and more. There's also a special memory button in every keyer that brings back your preferred or default chroma keying settings. Everyone always asks about the quality of the chroma keys when buying a switcher so we put in a good one.

Another issue on live switchers is what to do about the program/preset area. On one hand it needs to be simple because that's where you "escape" to when things go

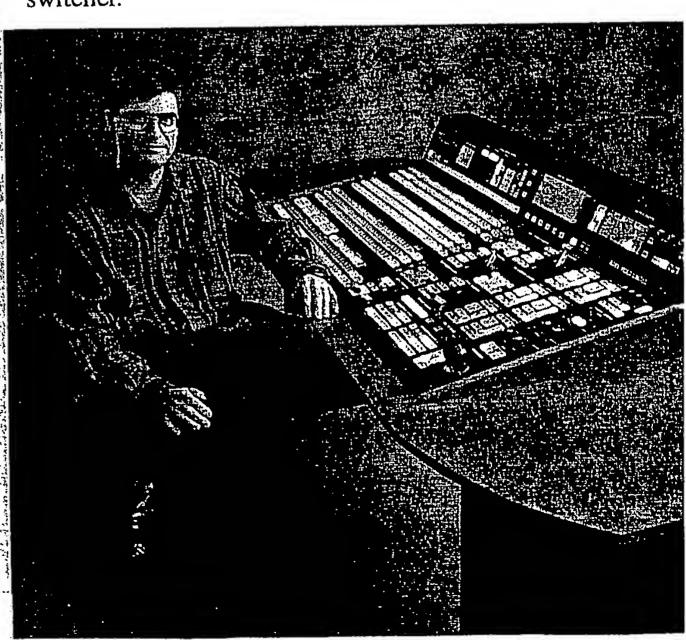
wrong. On the other hand, who were the second and t people don't want to be forced to go up one MLE just to do a simple wipe. We put wipes in the program/preset as standard equipment and optimized the transition controls for the special needs of that area. For the downstream keyers, we simplified the layout (while maintaining full keying power when you need it), and added an 8 input mini key bus for each DSK to make it fast to find the source you need. All 64 inputs are still available to the DSKs at the touch of a button.

"This switcher is for news, sports, and live production. A professional in the field has to be able to sit in front of the switcher and say - I can run this right now. I passionately believe that we have made that switcher.

An impressive pattern generator is something people look for in a switcher. Synergy comes standard with two generators per MLE. A simple one for preset patterns in key 2 and a full featured one shared between wipes and preset patterns in key 1. Traditional wipes, rotary wipes, and matrix wipes are all there. There's also some new wipes that we think look pretty good. You'll have to come see a switcher to find out what I mean.

The shape and layout of the switcher panels were a major concern when we designed them. The area around a switcher operator is considered prime real estate and usually ends up looking something like an airplane cockpit. A lot of switchers recently have come onto the market with massive upper panels that prevent the use of space above the switcher without blocking the monitor wall. We kept the upper panel as low as possible. We also asked the second shortest person on our team to sit in front of a mock up of our largest panel and adjusted it until he could reach every button without stepping out of his chair. We know that people will have to work in front of these panels day in and day out. We wanted to make it as comfortable as possible.

It takes even more than a firm grasp of digital video technology to design a great digital switcher. Over the years my team and I have all logged months on the road working with switcher operators providing demos, training, and installation assistance. As a result, our customers and our designers understood each other. As the overriding goal, the following words were spoken over and over: "This switcher is for news, sports, and live production. A professional in the field has to be able to sit in front of the switcher and say - 'I can run this right now'." I passionately believe that we have made that switcher.



David Ross DRoss@rossvideo.com If you have any ideas, give me a call. We listen.

John Ross - President	Page
Welcome Another Great Year / Corporate Profile	1 2
David Ross - Executive Vice President The Telecine Switcher Story The DVB 8020 Story The Synergy Story	3 4 4
Synergy Series - Digital Video Production Switchers	8
Analog Video Production Switchers	15
Video Keyers - Analog	25
Video Keyers - Digital	31
Master Control	39
Distribution - Digital - Video - 8000 Series (Leitche Compatible)	43
Conversion - A-D (Leitch* Compatible)	51
Conversion - D-A (Leitch® Compatible)	55
Special Application - Digital Video - 8000 Series (Leitche Compatible)	63
Special Application - Analog - 8000 Series (Leitch* Compatible)	79
Distribution - Analog - Video - 7000 Series (Leitche Compatible)	85
Distribution - Analog - Video - 7500 Series (GVG <sup>co</sup> Compatible)	97
Distribution - Analog - Audio - 7800 Series (Leitch* Compatible)	109
Distribution - Analog - Audio - 7550 Series (GVG Compatible)	119
Distribution - Analog - Special Application - 7000/7800 Series (Leitch* Compatible)	129
Distribution - Analog - Special Application - 7500 Series (GVG** Compatible)	135
Emergency Alert Systems (EAS) - 7500 Series (GVG** Compatible)	143
Index	147



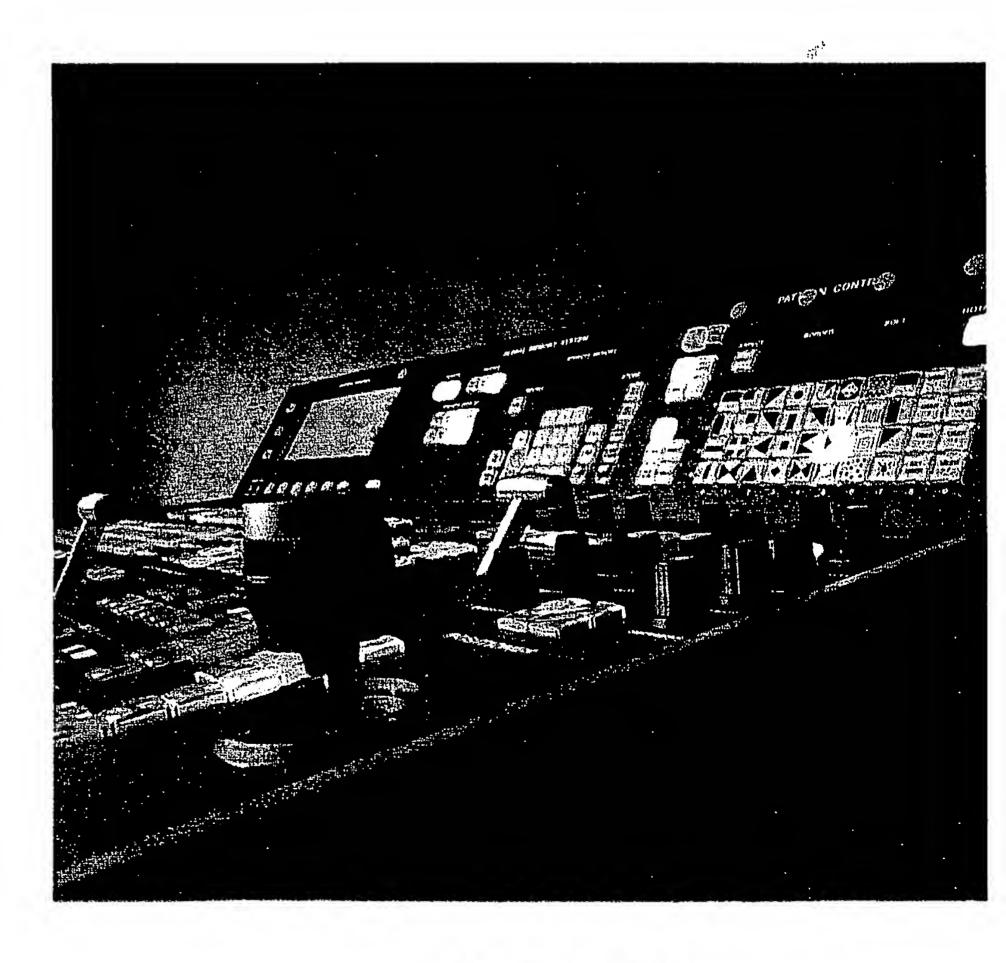
# The New Standard in Digital Production Switchers



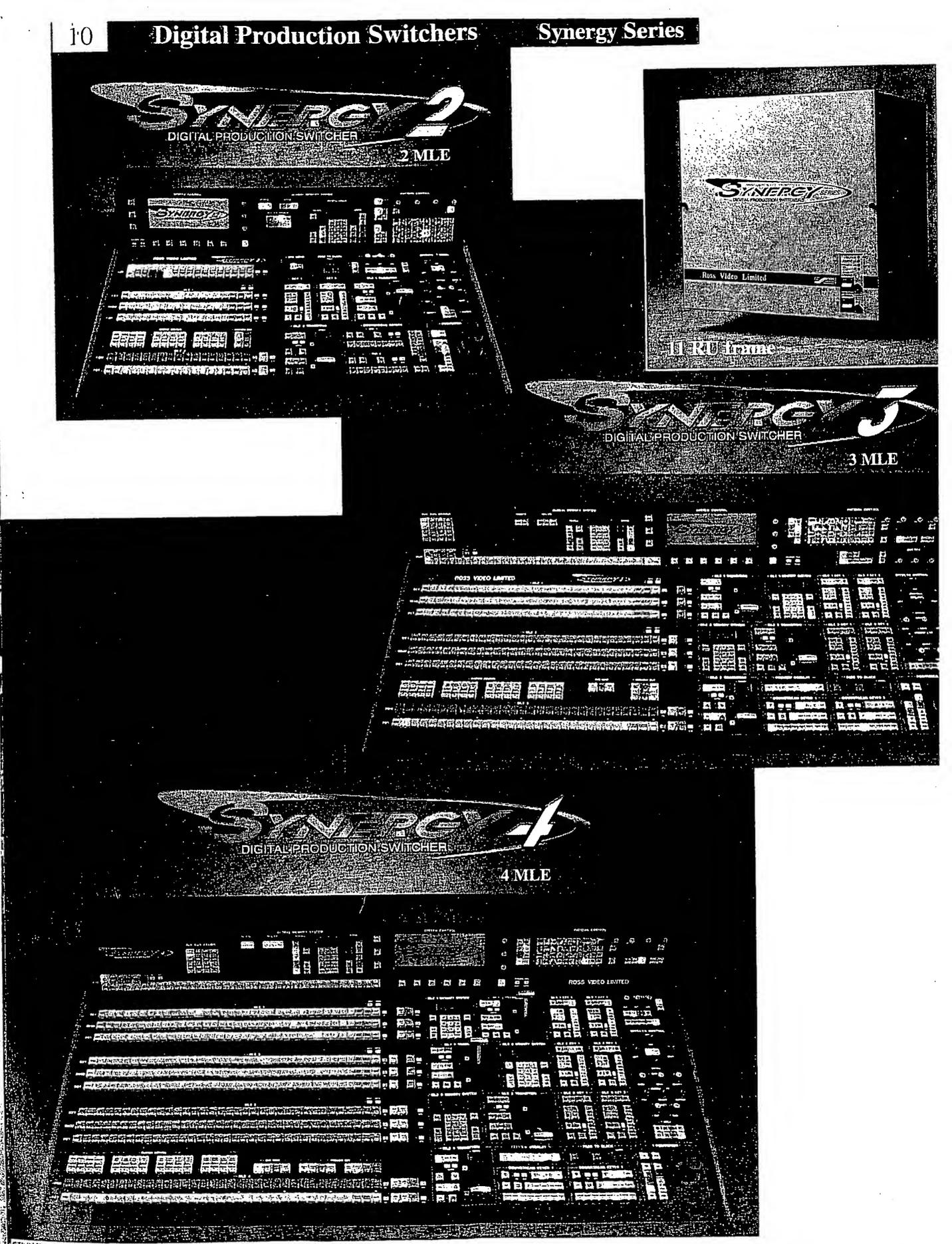


Ross Video developed the Synergy series of digital production switchers for live news, live sports, and live production. Because the switcher is the center of the action, it is important that it be powerful and versatile yet maintain its ease of operation. This frees the operator to concentrate on the programming instead of the equipment.

The Synergy series, our fourth generation of switchers, was designed with the direct input of video professionals experienced in news, sports, and mobile production. Key members of the Synergy design team are part of an ongoing program where they provide switcher demonstrations, assist with switcher installation, and train operators. As a result, the Synergy line continues to advance Ross Video's tradition of easy to use and logical panel layouts.







# Series Highlights

#### Huge Input Matrix.

The Synergy frame can accept up to 64 video inputs, purchased in sets of 8.

#### **Compact Size**

The 11 RU Synergy frame can hold 64 inputs, 4 fully optioned MLEs, 12 timed aux buses, an extender board, and full redundant power.

#### Low Power

500 watts for the frame and 350 watts for the panel is all the power that Synergy requires. They plug into standard power outlets.

#### **Growth Path**

The same video processing frame is used for our 2, 3 and 4 MLE switchers. You have the option of buying a smaller system now and then add another MLE and a larger control panel as your needs grow.

#### **Powerful Keyers**

These full function keyers have dedicated pushbuttons, flying borders for every key type, Squeeze & Tease, chroma keying, key over transition, quick key preview, transition generators, and bi-color on-air status.

#### Squeeze & Tease

A simple DVE can be built into every keyer - up two per MLE. Every type of key can be repositioned, squeezed, and zoomed. In fact, it's possible to simultaneously crop, reposition, mirror, squeeze or zoom, mask, border, and add a glowing transparent color-washed drop shadow to a key inside a single keyer.

#### **Chroma Keying**

The chroma keyers featuring chroma suppression, hue rejection, natural and simulated shadows, and transparencies were designed to be used in fast-paced productions.

#### VTR Control

Select a VTR on the PST bus, display it's current time code on the preview monitor, roll it from the transition area, and take it to air. Fast forward, rewind, and cue to time code are also available at the touch of a button on the control panel.

#### **Custom Control Hot Buttons**

32 macro buttons have been positioned close to the operator for powerful single touch control. Recall any combination of switcher memories, button pushes, and external device control.

# Two Pattern Generators per MLE - Standard

The Synergy series comes standard with a primary pattern generator for wipes and PST PATT 1 and a secondary pattern generator for PST PATT 2. The primary generators come equipped with extensive traditional, rotary, and matrix wipes.

#### Fully Featured "Program/Preset"

We didn't skimp when we designed this switcher. The bottom MLE, normally referred to as the Program/Preset area has full effects capability including complete wipes and dual DSKs with chroma keys, preset patterns, and Squeeze & Tease.

#### **Unique Preview Overlay**

This powerful option presents VTR time code, a count up/down timer, source ID, safe title, and more. They are individually selectable and put on the preview monitor for quick reference.

#### **External DVE Integration**

DVE effects from all popular DVEs are seamlessly integrated as switcher transitions. Push, slide, and warp keys, backgrounds, or both without tying up keyers or worrying about aux buses, signal paths, or tallies.

#### Upgrades from the Web

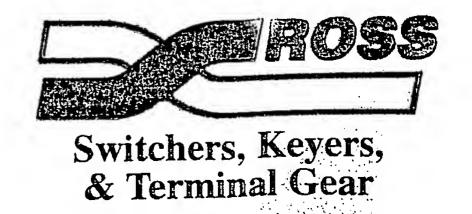
Software and even some hardware can be upgraded by downloading files from our web site onto a standard floppy disk. It's fast and it's easy.

#### **Affordable**

This is a powerful switcher for an excellent price.

#### **Built to Last**

Its no secret that Ross products are tough. They're built to handle years of demanding, continuous use. The Synergy series is backed by a 3 year transferable warranty.



# **Synergy Series Ordering Information**

## S4-001 Synergy 4 Digital Production Switcher

- 4 MLE Multi-Level Effects (MLE) Systems
- 32 Serial Digital Inputs (Card Expandable to 64)
- 35 Source Crosspoint Buttons on Control Panel
- 22 Serial Digital Outputs
- 20 Matte Generators

## S3-001 Synergy 3 Digital Production Switcher

- 3 MLE Multi-Level Effects (MLE) Systems
- 24 Serial Digital Inputs (Card Expandable to 64)
- 30 Source Crosspoint Buttons on Control Panel
- 20 Serial Digital Outputs
- 15 Matte Generators

# S2-001 Synergy 2 Digital Production Switcher

- 2 MLE Multi-Level Effects (MLE) Systems
- 16 Serial Digital Inputs (Card Expandable to 64)
- 17 Source Crosspoint Buttons on Control Panel
- 18 Serial Digital Outputs
- 10 Matte Generators

## Synergy 4, Synergy 3 and Synergy 2 Standard Systems include:

Complete Control Panel Chroma Keying in Every Keyer 2 Pattern Generators per MLE

Wipes in Program/Preset

12 Untimed Aux Busses

Disk Drive & System Control Area **Custom Control Macro Buttons** 

50 Event Memory System

12 GPI Inputs and 12 GPI Outputs

36 Tally Outputs

10 Meter (33 feet) Control Panel Cable

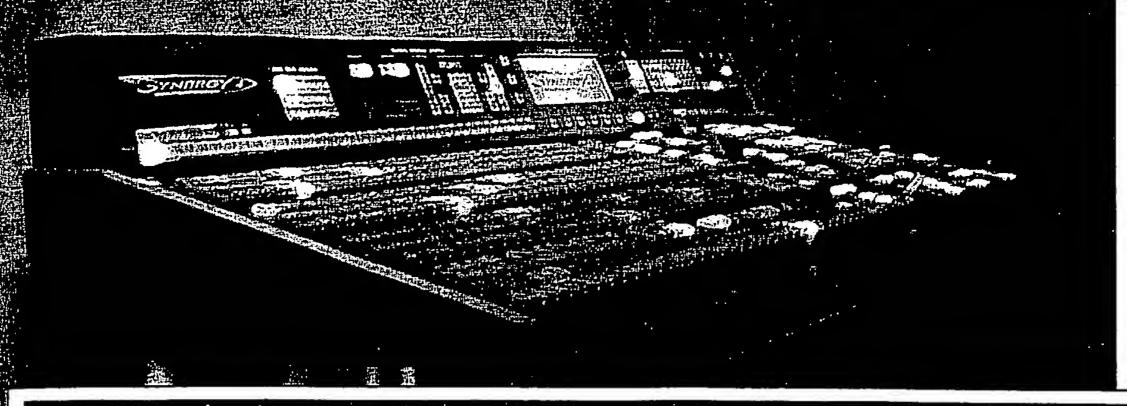
System Manuals

3 Year Transferable Warranty

# Synergy Series System Options Table

Synergy 4	Synergy 3	Synergy 2	and the state of t
S4-022	S3-022	S2-022	8 Additional Serial Digital Inputs
S4-023	S3-023	S2-023	Conversion Frames (DFR-8110 includes 1 power supply)
S4-031	S3-031	S2-031	Clean Feed
S4-032	S3-032	S2-032	Preview Overlay
S4-140	S3-140	S2-140	Squeeze & Tease (MLE 1 keyers)
S4-240	S3-240	S2-240	Squeeze & Tease (MLE 2 keyers)
S4-340	S3-340	N/A	Squeeze & Tease (MLE 3 keyers)
S4-440	N/A	N/A	Squeeze & Tease (MLE 4 keyers)
\$4-141	S3-141	S2-141	Dual Border Generator (MLE 1 keyers)
\$4-241	S3-241	S2-241	Dual Border Generator (MLE 2 keyers)
\$4-341	\$3-341	N/A	Dual Border Generator (MLE 3 keyers)
S4-441	N/A	N/A	Dual Border Generator (MLE 4 keyers)
S4-051	S3-051	S2-051	Timed Aux Bus (max of 12)
\$4-052	S3-052	S2-052	Dedicated Remote Aux Panel (incl. 10 meter cable)
S4-053	S3-053	S2-053	Assignable Remote Aux Panel (incl. 10 meter cable)
\$4-054-xxx	S3-054-xxx	S2-054-xxx	Custom Cable for Aux Panel (per meter, replaces 10 meter cable)
S4-060	S3-060	S2-060	Editor Interface
S4-061	S3-061	S2-061	VTR Remote Control (8 VTRs)
S4-062	S3-062	S2-062	DVE Send & Remote Control
S4-070	S3-070	S2-070	Extended Tallies (32-64 or Preview Tallies)
S4-071	S3-071	S2-071	Redundant Power (Frame & Panel)
S4-071 S4-072	S3-072	S2-072	Extender Board
S4-072	\$3-073	\$2-073	Spare Parts Kit
S4-075-xxx	\$3-075-xxx	S2-075-xxx	Custom Cable for Main Panel (per meter, replaces 10 meter cable
S4-080	\$3-080	S2-080	Additional Technical Manual
S4-080 S4-081	S3-081	\$2-081	Additional Operator's Manual
S4-081 S4-082	\$3-082	\$2-082	Additional Installation Manual





### **Synergy Specifications**

#### PHYSICAL CHARACTERISTICS

#### Synergy 4 Control Panel

56.25" (143.9 cm) width 12.5" (31.8 cm) height depth 29.0" (73.7 cm) 10.0" (25.4 cm) height above desktop desk cutout width 54.75" (146.7 cm) desk cutout depth 28.0" (70.5 cm)

#### Synergy 3 Control Panel

51.75" (131.4 cm) width 11.625" (29.5 cm) height 24.125" (61.3 cm) depth height above desktop 9.25" (23.5 cm) desk cutout width 50.25" (127.6 cm) 23.0" (58.4 cm) desk cutout depth

#### Synergy 2 Control Panel

width 36.875" (93.7 cm) 11.25" (28.6 cm) height 22.375" (56.8 cm) depth height above desktop 9.0" (22.9 cm) 35.5" (90.2 cm) desk cutout width 21.25" (54.0 cm) desk cutout depth

#### **Rack Frame**

以利用的自己的自己的自己的

11 rack units (11 RUs)

19" (48.3 cm) width 19.5" (49.5 cm) height depth 19.25 (48.9 cm)

Note: Specifications are subject to change without notice.

#### Video Inputs

Number of inputs (any model): up to 64

1 per bus

All inputs are 10 bit CCIR-601 serial digital non-looping. Inputs are purchased in sets of 8.

The Synergy 4 comes standard with 32 inputs, Synergy 3 with 24 inputs, and Synergy 2 with 16 inputs. Inputs can be used for either key or video.

The reference input is CCIR 601 and is chosen as one of the standard inputs. External A-D conversion is required for analog references.

#### **Video Outputs**

Number of Outputs:

aux bus (1 to 12)

MLE 1, 2, & 3 PGM 1 each MLE 1, 2, & 3 PV 1 each MLE 4 PGM (main PGM) MLE 4 PV main PV without overlay main PV with overlay clean feed expansion (future use)

#### Outputs for Synergy 4 (shown above)

On the Synergy 3, MLE 3 becomes main PGM and MLE 4 is inactive.

On the Synergy 2, MLE 2 becomes main PGM and MLE 3 and MLE 4 are inactive.

All video outputs are 10 bit CCIR-601 serial digital. EDH is inserted into all video outputs except untimed aux busses and can be disabled.

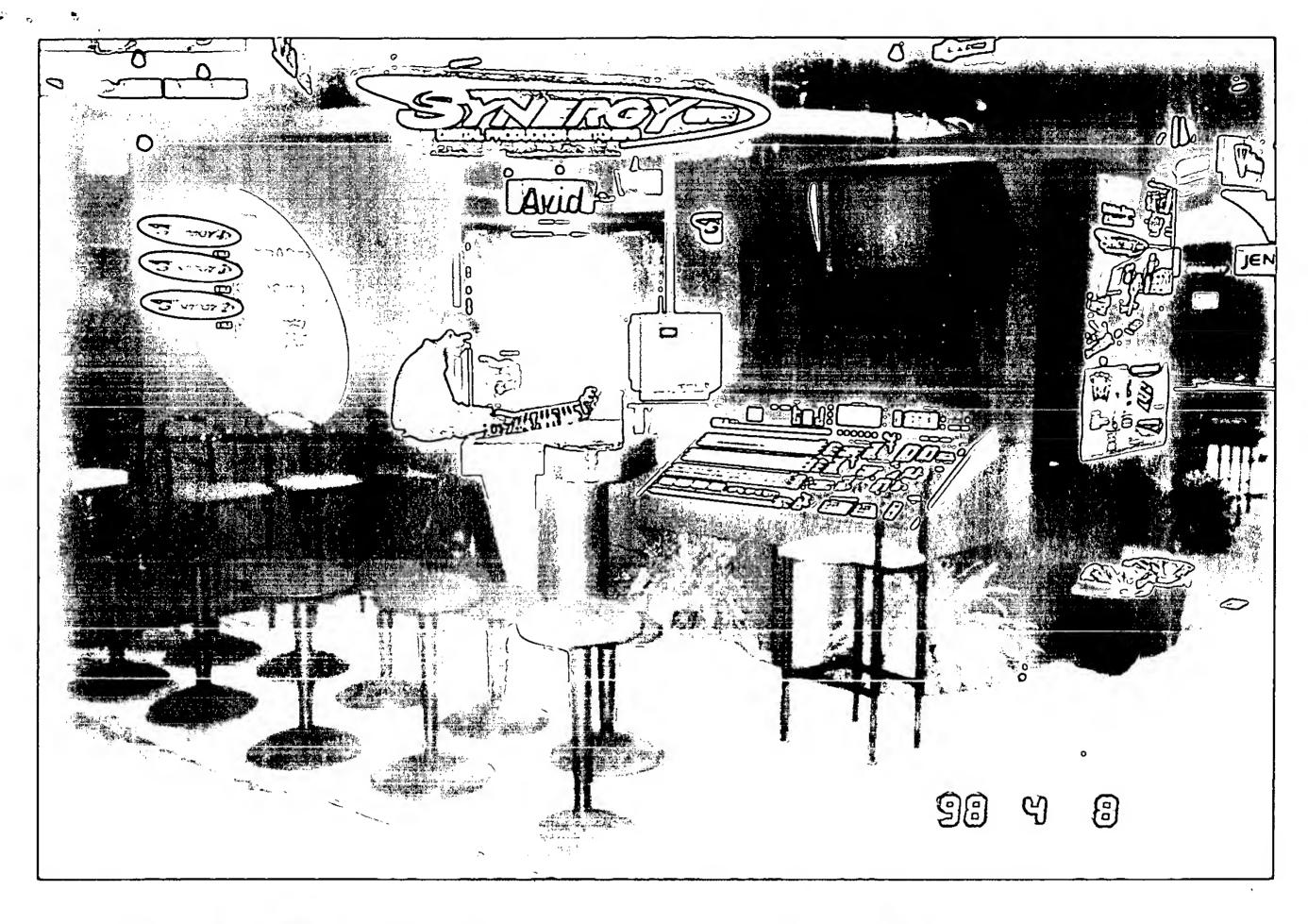
#### SYSTEM TIMING

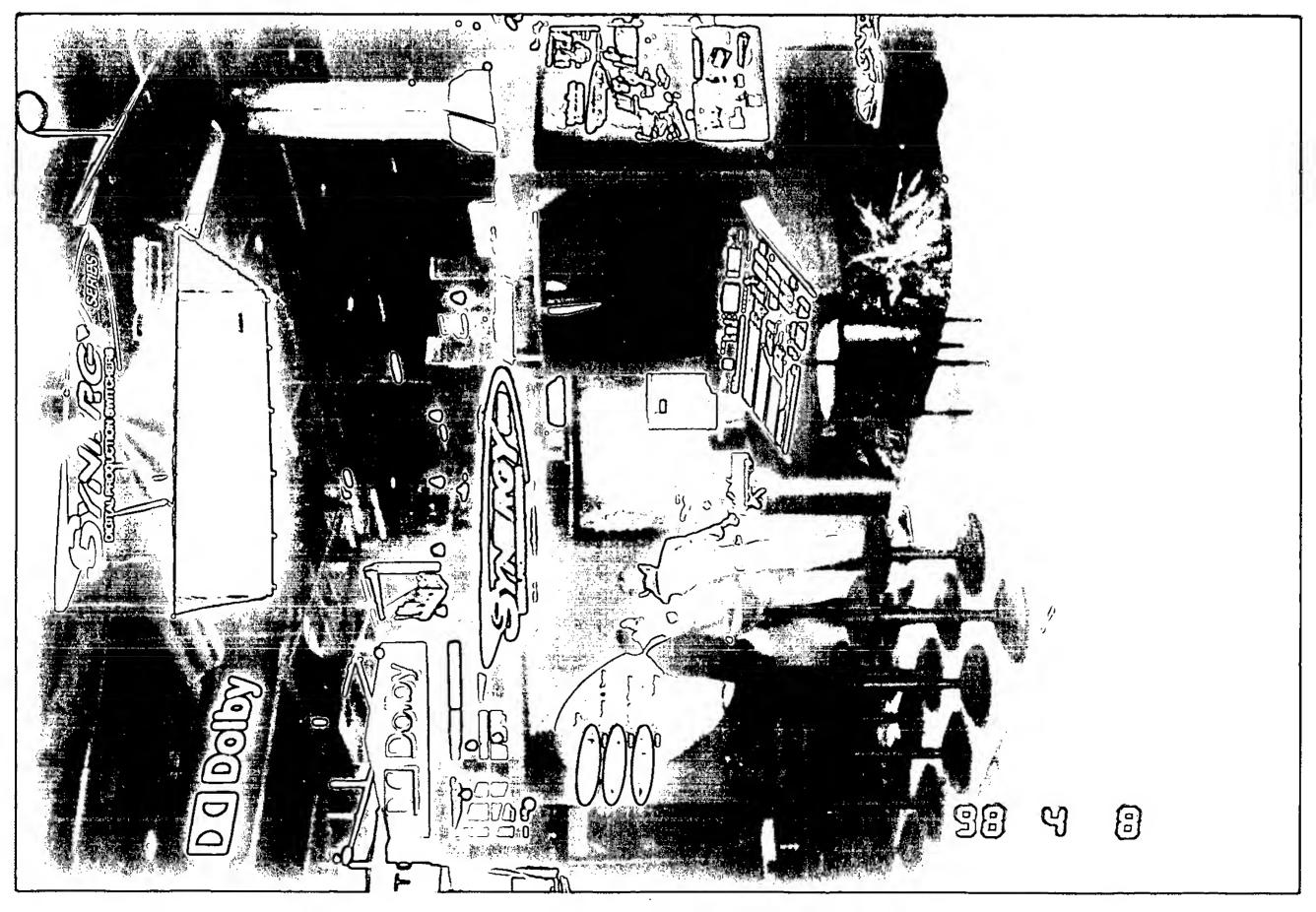
All video inputs are zero time relative to reference input, auto timing will correct for inputs out of time by up to +/- 0.25 line (16us).

The delay through the switcher is less than one quarter line (approx. 12us). This delay can be manually increased in 37ns steps to a maximum of 32us in order to accommodate late video signals.



## **EXHIBIT B**





## **EXHIBIT C**

This is Exhibit.

affidavit of ALUN FRYCH

Sworn before me, this. 26

day of 19.07

A COMMAISSIONER FOR TAKING AFFIDAVITS







Ross Synergy Series Switchers

Awarded Television Broadcast's Editors' Pick of the Show Award

2 Years in a Row!

Last year, the Ross Synergy Series Digital Production Switchers were awarded an Editors' Pick of the Show Award for it's shared architecture; low power consumption, and extensive feature package which includes "Squeeze & Tease" DVE effects in every keyer, Custom Control Magro Buttons for personalized operation, and unique Preview Overlay which presents VTR time code, a count up/down times, source ID, safe title and more

This year, the Synergy Series was awarded an Editors Pick of the Show award for the addition of Aspectivers to the inputs and outputs which allows for simultaneous 4:3 and 16:9 production.

Other major additions to the Synergy Series switchers include Ultimatte Insider Matting Device; Video and Audio Server Control and Dual Border generators.

Oh yes, we failed to mention - Synergy also won a Reader's Choice Award from Broadcast Engineering magazine in December

Synamy - An Award Winning Switcher







Synergy - Designed for DTV Production

Switchers, Keyers, & Terminal Gear

25yrs

Ross Video Limited: 120, Box 220, 8 John Smeet, incepts, ON, Canada <u>KOE (150)</u> Ross Video Incorporated: 120, Box 830, Ogdensburg, New York, USA 12669 0830

www.rossvicso.com

ত্রেন্ড এইর্ন্টেরিক) নেত্রর প্রাক্তি স্থান্ত স্থান্ত স্থান্ত স্থান্ত স্থান্ত স্থানিক নির্দ্ধান্ত বিশ্বনিক বিশ্বনাধ্যান্ত বিশ্বনাধ্য বিশ্বনাধ্যান্ত বিশ্বনাধ্যান বিশ্বনাধ্য বিশ্বনাধ্য বিশ্বনাধ্য বিশ্বনাধ্যান্ত বিশ্বনাধ্য বিশ্বনাধ্য বিশ্বনাধ্য বিশ্